REMARKS

Reconsideration is respectfully requested in view of the following remarks.

The Examiner has allowed claims 15-30.

Claims 1 and 2 have been rejected under 35 USC 103(a) as being unpatentable over Trefilov (PCT/UA94/00018) in view of Gordon (U.S. 5,744,014).

Claims 3-14 have been rejected under 35 USC 103(a) as being unpatentable over Trefilov (PCT/UA94/00018) in view of Gordon (U.S. 5,744,014) further in view of Mototani (US 5,482,798).

The reference Trefilov (PCT/UA94/00018) shows an electrochemical cell with a cathode comprising copper hydroxide chloride ($CuCl_2 \cdot 3Cu(OH)_2$) and an anode comprising a magnesium or aluminum based anode, but may also contain aluminum-zinc alloys (p. 6, lines 1-8.) Trefilov discloses that sulfur can be present in the cathode. (p. 6, lines 8-10.) Graphite, carbon black, acetylene black or other carbon compounds can also be present as additives to the cathode. (p. 6, lines 20-23.) However, the Examiner acknowledges that the cell is not an alkaline cell. (Action, p.3, line 5.) Furthermore, it will be appreciated that copper hydroxide chloride is a different compound from copper hydroxide. This is readily recognizable not only from the above referenced formula ($CuCl_2 \cdot 3Cu(OH)_2$) but also the chemical name itself. In other words the $CuCl_2$ is imbedded into the compound making it a different compound from $Cu(OH)_2$. In such context the $CuCl_2$ should not be considered merely as an impurity in admixture with $Cu(OH)_2$. That is, technically Trefilov's cathode active material should be viewed as a copper hydroxide chloride cathode additive. In fact Trefilov references his cathode active material consistently throughout the text as a copper hydroxide chloride. Trefilov's separator is impregnated with KCl solution.

The cell is water activated using fresh water or sea water as the electrolyte as shown for example at p. 8, lines 12-17. The K^+ ions from KCl may play a role in contributing to the electrolyte properties, however, there is clearly no alkaline present and no mention of the use of an alkaline electrolyte in connection with Trfilov's cell.

The reference Gordon (U.S. 5,744,014) discloses a gas generating alkaline cell having an anode comprising carbon and a cathode comprising $Cu(OH)_2$. The cathode may also comprise carbon in the form of a graphite. Gordon discloses an anode comprising a high surface carbon, preferably coated with a hydrophobic material such as polytetrafluoroethylene (PTFE). (col. 3, lines 57-62) The electrolyte is an aqueous solution of NaOH. There is no other electrolyte disclosed or mentioned in Gordon. It will be appreciated that Gordon's cell is an electrolytic cell, as stated, which is characterized by the consumption of electrical energy input to the cell. (col. 2, lines 35-38.) Since the cell is an electrolytic cell, there is a battery provided in the circuit to drive the electrolysis process within the electrolytic cell. (col. 2, lines 50-53.) The cell generates oxygen gas product at the anode during the electrolysis process within the cell. (col. 2, lines 53-55.) The oxygen gas generated by the cell acts as a pressurizing agent against a moveable bladder wall to expel fluid (e.g., medicinal, insecticidal, or fragrant fluid) therefrom. Thus, Gordon's cell is not intended to function as an electrochemical cell capable of producing electrical energy, but rather as an electrical energy consuming (electrolytic) cell. Representative cathode mixtures comprising $Cu(OH)_2$, graphite and aqueous NaOH electrolyte is disclosed in the reference, for example, at col. 6, lines 20-50.

The Examiner maintains that Gordon teaches an alkaline battery comprising a cathode comprising copper hydroxide active material with graphite conductor material and sodium hydroxide electrolyte (col. 6). The Examiner implies that although

Trefilov does not disclose use of an alkaline electrolyte that one of ordinary skill would recognize from teaching of Gordon that KOH could be substituted for the NaOH. The Examiner maintains that the KOH can be applied as a replacement for the KCl solution in Trefilov. Applicant believes that such substitution would not be apparent, particularly in view of any specific teaching pertaining thereto in Gordon, since Gordon's cell is an electrolytic (electrical energy consuming) cell, not an electrochemical cell intended for supplying electrical energy.

Applicant acknowledges that Mototani (U.S. 5,482,798) teaches use of expanded graphite as a conductive carbon additive to alkaline MnO_2 batteries. But Mototani does not contemplate alkaline batteries comprising $Cu(OH)_2$ cathodes and does not specifically teach any benefit to be realized in adding such expanded graphite to $Cu(OH)_2$ cathodes. However, Applicant is not maintaining that the inclusion of expanded graphite as additive in the Cu(OH)2 is, per se, at the point of novelty.

Applicant has now amended independent claims 1,2, and 3 to recite that the cell is capable of producing electrical energy, that the anode comprises zinc, the anode comprises $Cu(OH)_2$ and graphite and that the electrolyte comprises an aqueous solution of KOH. By contrast, it will be recognized that Gordon's cell is an electrolytic cell, that is, an electrical energy consuming cell, not an electrical energy producing cell. It will be appreciated further that Gordon does not specifically mention substituting KOH for NaOH in the context of his electrolytic cell. In any event an electrolytic cell is not the type of cell, namely, an electrical energy producing cell to which Applicant's invention is directed. Thus, there is no teaching in Gordon to support the view that it would be obvious to substitute KOH for NaOH in Gordon to arrive at an Applicant's electrical energy producing cell comprising a zinc anode and $Cu(OH)_2$ cathode. Furthermore, Trefilov's cathode comprises a copper hydroxide

chloride ($CuCl_2 \cdot 3Cu(OH)_2$), which is a different compound from Applicant's copper hydroxide ($Cu(OH)_2$). Such argument, not withstanding, Applicant points out that neither Trefilov, nor Gordon discloses or suggests an alkaline cell capable of producing electrical energy (battery) using an anode comprising zinc in combination with a cathode comprising $Cu(OH)_2$.

Specifically, Trefilov employs an aluminum or magnesium based anode, which may include an aluminum-zinc alloy, however, his cell is not an alkaline cell and the cathode comprises a copper hydroxide chloride. Trefilov does not disclose or suggest use of anode comprising zinc in combination with any copper hydroxide cathode in the context of a cell with alkaline electrolyte. Gordon discloses only a carbon based anode in combination with a cathode comprising $Cu(OH)_2$ and does not contemplate use of an anode comprising zinc in combination with a cathode comprising $Cu(OH)_2$. Furthermore, Gordon's cell is an electrolytic cell (energy consuming cell) not an electrochemical cell capable of producing electrical energy.

Applicant has now amended independent claims 1,2, and 3 to recite that the cell is an electrochemical cell capable of producing electrical energy. This removes the reference Gordon further away in terms of its relevance to Applicant's invention. Applicant has also amended independent claims 1,2, and 3 to recite that the alkaline electrolyte comprises an aqueous solution of KOH and that the anode comprises zinc. Neither of the principal references discloses or suggests an anode comprising zinc in combination with a cathode comprising $Cu(OH)_2$ in the context of a alkaline cell capable of producing electrical energy.

Applicant believes that the independent claims 1,2, and 3 as amended reflect a patentable invention over the cited references. The principal references Trefilov or Gordon alone or in combination do not teach or suggest Applicant's claimed

invention as recited in independent claims 1,2, and 3. One would need Applicant's disclosure before him in order to supply the missing information, namely, zinc anode, aqueous KOH electrolyte, in combination with a cathode comprising $Cu(OH)_2$ in the context of an energy producing cell (battery). Such hindsight analysis is inapplicable. See, e.g., In re Dillon, 13 USPQ2d 1337, 1343 (CAFC 1989); Grain Processing Corp. v. American Maize-Products Co., 5 USPQ2d 1788, 1792 (Fed. Cir. 1988); In re Linnert and Espy, 135 USPQ 307 (CCPA 1962). To support a rejection under 35 USC 103 the references must provide a basis within their own teachings and not the teaching of the application.

Accordingly it is believed that the independent claims 1,2, 3 as amended herein are patentable over the principal references Trefilov in view of Gordon and withdrawal of the rejections under 35 USC 103 is respectfully requested. Claims 15-30 stand allowed. The remaining claims reflect specific embodiments of the invention and should be allowable if the independent claims as amended are allowed. Every effort has been made to place the application in condition for allowance. A favorable action by the Examiner and a formal allowance is solicited.

The undersigned attorney solicits a telephone call from the Examiner to clarify any questions which the Examiner may have concerning the application. Authorization is hereby given to debit Deposit Account 502271 for any amount owing or credit the same account for any overcharges in connection with this communication.

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Respectfully submitted,

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I certify that this correspondence is being deposited March 10, 2004 with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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